

Date: Thursday, 3/30/2006 8:32:56 AM  
 User: Kim Johnston

## Process Sheet

|  |   |
|--|---|
| Customer : CU-DAR001 Dart Helicopters Services | Drawing Name : FWD TUBE ASSEMBLY                              |
| Job Number : 26427                             |   |
| Estimate Number : 10467                        |   |
| P.O. Number :                                  | Part Number : D3391021  |
| This Issue : 3/30/2006 S.O. No. :              | Drawing Number : D3391 <del>REV D</del> <b>REV E</b> 06.05.11 |
| Prsht Rev. : NC                                | Project Number : N/A  |
| First Issue : // Type : MACHINED PARTS         | Drawing Revision : D  |
| Previous Run : 26426                           | Material :  |
| Written By :                                   | Due Date : 4/20/2006 Qty: 1 Um: Each                          |
| Checked & Approved By : <u>JA 06.03.30</u>     |   |
| Comment : Est. A 05.09.13 New issue KJ/JLM     |   |
| Est. B 06.02.10 Dwg rev.D ech 773 EC           |   |

## Additional Product

Job Number:



| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|
|---------|-----------------------|---------------|

|     |          |                |
|-----|----------|----------------|
| 1.0 | D6013047 | SKIDTUBE MAT'L |
|-----|----------|----------------|



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

SKIDTUBE MAT'L

Pick:

| Qty | Part Number | Description |
|-----|-------------|-------------|
| 1   | D6013-047   | Extrusion   |

Batch

B23935 DR 06-4-9

|     |                |                         |
|-----|----------------|-------------------------|
| 2.0 | LANDING GEAR 1 | LANDING GEAR RESOURCE 1 |
|-----|----------------|-------------------------|



Comment: LANDING GEAR RESOURCE 1

Cut extrusion to 46.52 +0.010 -0.020

7ml 06/05/13

|     |         |                 |
|-----|---------|-----------------|
| 3.0 | BENDING | BENDING MACHINE |
|-----|---------|-----------------|



Comment: Nc bender

Bend as per Dwg D3391 Using Bend Prog 3391021

DR 06-4-12

|     |     |                              |
|-----|-----|------------------------------|
| 4.0 | QC5 | INSPECT WORK TO CURRENT STEP |
|-----|-----|------------------------------|



Comment: INSPECT WORK TO CURRENT STEP

7ml 06/04/12

|     |       |                                |
|-----|-------|--------------------------------|
| 5.0 | HAAS1 | HAAS CNC VERTICAL MACHINING #1 |
|-----|-------|--------------------------------|



Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine as per Folio FA590 Rev. AA & Dwg D3391 Rev. E

Identify as D3391-1


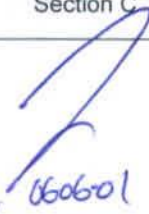
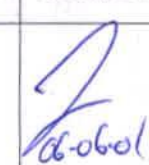
7ml 06/05/14

2-Deburr

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR:     |      | WORK ORDER NON-CONFORMANCE (NCR)   |                                |                                 |   |  |                       |  |
|----------|------|--|--------------------------------|---------------------------------|---|--|-----------------------|--|
| DATE     | STEP | Description of NC<br>Section A   | Corrective Action<br>Section B |                                 |   | Verification<br>Section C  | Approval<br>Chief Eng | Approval<br>QC Inspector   |
|          |      |  | Initial<br>Chief Eng           | Action Description<br>Chief Eng | Sign &<br>Date  |  |                       |  |
| 06-06-01 | 5    | <div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <div style="width: 10px;"> <div style="width: 10px; height: 10px; background-color: black;"></div> <div style="width: 10px; height: 10px; background-color: black;"></div> <div style="width: 10px; height: 10px; background-color: black;"></div> <div style="width: 10px; height: 10px; background-color: black;"></div> </div> <div>           Hole Alignment off by<br/>           .057. Wrong origin set at<br/>           0 when tube turned over<br/>           to drill holes on opposite side.         </div> </div> </div> |                                | Scrap. destroy                  | <br>06-06-01 | <br>060601 |                       | <br>06-06-01 |
|          |      |  |                                |                                 |   |  |                       |  |
|          |      |  |                                |                                 |   |  |                       |  |

NOTE: Date & initial all entries



Date: Thursday, 3/30/2006 8:32:56 AM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 26427

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

*Waldo 5/14*

1

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

*Blk 06.05.31*

1

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill and c/sink float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)  
(ONLY DRILL HOLES MARKED "A")

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5-Drill wearplate holes as per Dwg D3391 Using Dt8217 & DT8878

6--Deburr

9.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

10.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



Date: Thursday, 3/30/2006 8:32:56 AM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 26427

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

12.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Tow Cap Assembly

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|-------------|-------|
| 1   | D3401-041   | Tow Cap     |       |

13.0

AN3C4A

BOLT



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|-------------|-------|
| 4   | AN3C4A      | Bolt        |       |

14.0

NAS1330C3KB166



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)

Rivnut

Pick:

| Qty | Part Number    | Description | Batch |
|-----|----------------|-------------|-------|
| 14  | NAS1330C3KB166 | Insert      |       |

15.0

NAS1515H3L

WASHER



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Washer

Pick:

| Qty | Part Number | Description | Batch |
|-----|-------------|-------------|-------|
| 4   | NAS1515H3L  | Washer      |       |

16.0

AN960C10L

washer



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

washer

17.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: SMALL & MEDIUM FAB RESOURCE 1

Install inserts and Tow Cap as per Dwg D3391

Identify as D3391-021

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 26427

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

18.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Inspect thread of each insert using DT8821

19.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: \_\_\_\_\_

20.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Inspection Level 21

Job Completion



*U. Johnston*



| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

NOTE: Date & initial all entries





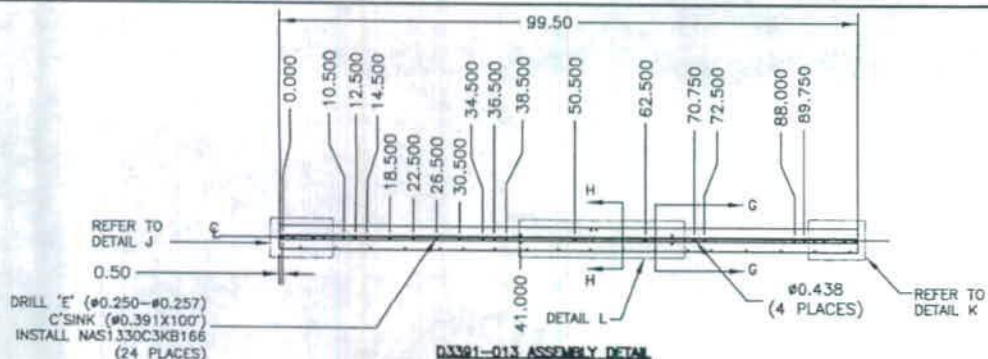




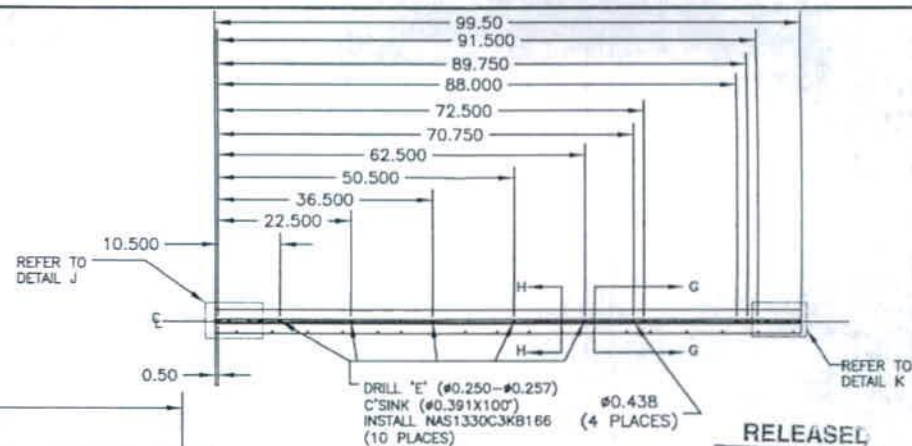




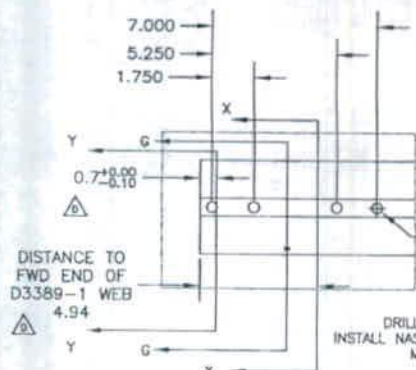




D3391-013 ASSEMBLY DETAIL

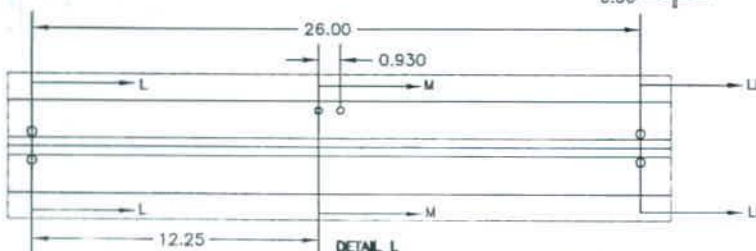


D3391-023 ASSEMBLY DETAIL

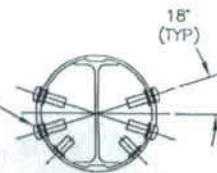


DETAIL J  
(SCALE 1:5)

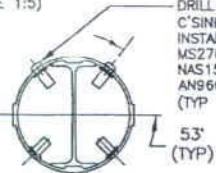
DRILL 'Q' (#0.332-#0.338)  
INSTALL NAS1329C4KB140 INSERT  
MS27039C4-08 SCREW  
NAS1515H4L WASHER  
AN960C416L WASHER  
(TYP 4 PLACES)



DETAIL L  
(SCALE 1:5)



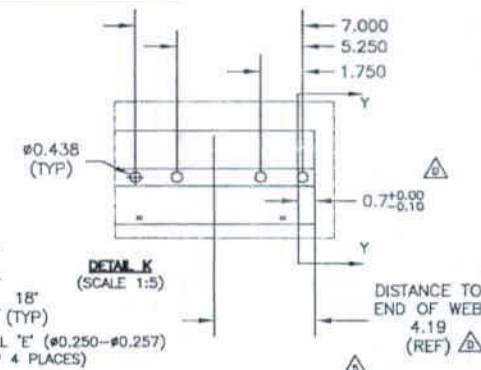
SECTION I-I  
(SCALE 1:4)



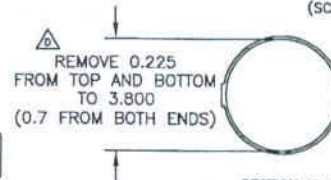
SECTION M-M  
(SCALE 1:4)



SECTION LL-LL  
(SCALE 1:4)



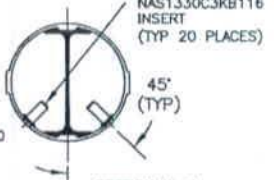
DETAIL K  
(SCALE 1:5)



SECTION Y-Y  
(SCALE 1:4)



SECTION G-G  
(SCALE 1:4)



SECTION H-H  
(SCALE 1:4)



SECTION X-X  
(SCALE 1:2)

D3391-013/-023 MID TUBE ASSEMBLY PARTS LIST

| QTY - 013 | QTY - 023 | PART NUMBER    | DESCRIPTION       |
|-----------|-----------|----------------|-------------------|
| X         |           | D3391-013      | MID TUBE ASSEMBLY |
|           | X         | D3391-023      | MID TUBE ASSEMBLY |
| 1         | 1         | D2500-1-100    | EXTRUSION         |
| 1         | 1         | D3389-1        | WEB               |
| 24        | 20        | NAS1330C3KB116 | INSERT            |
| 24        | 10        | NAS1330C3KB166 | INSERT            |
| 4         |           | NAS1329C4KB140 | INSERT            |
| 4         |           | NAS1515H3L     | WASHER            |
| 4         |           | AN960C10L      | WASHER            |
| 4         |           | NAS1515H4L     | WASHER            |
| 4         |           | AN960C416L     | WASHER            |
| 4         |           | MS27039C1-08   | SCREW             |
| 4         |           | MS27039C4-08   | SCREW             |

D3391-013/-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015

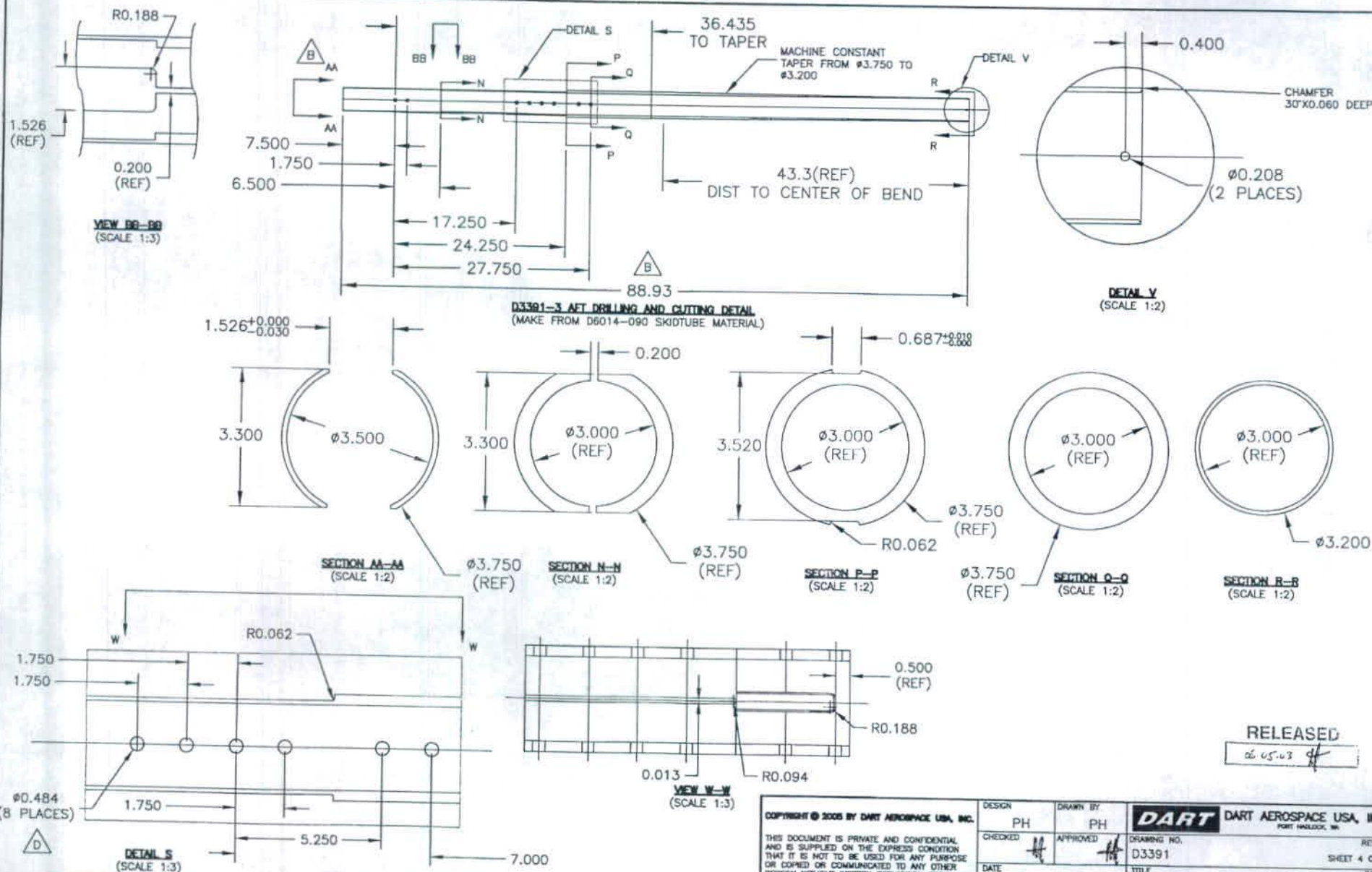
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|                  |                             |   |              |
|------------------|-----------------------------|---|--------------|
| DESIGN<br>PH     | DRAWN BY<br>PH              | <b>DART</b> DART AEROSPACE USA, INC.<br>PORT WASHINGTON, WA | REV. E       |
| CHECKED<br>H     | APPROVED<br>H               | DRAWING NO.<br>D3391  | SHEET 3 OF 5 |
| DATE<br>06.04.25 | TITLE<br>412 FLOAT SKIDTUBE | SCALE<br>1:20   |              |







RELEASED

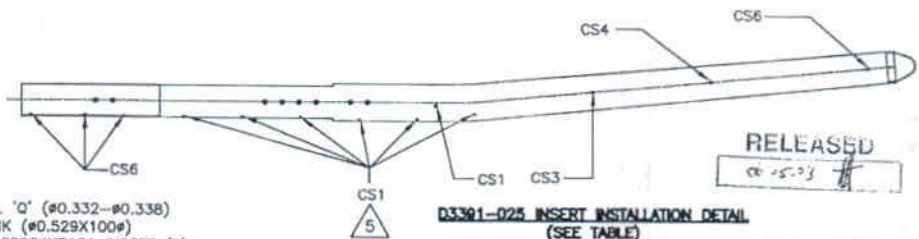
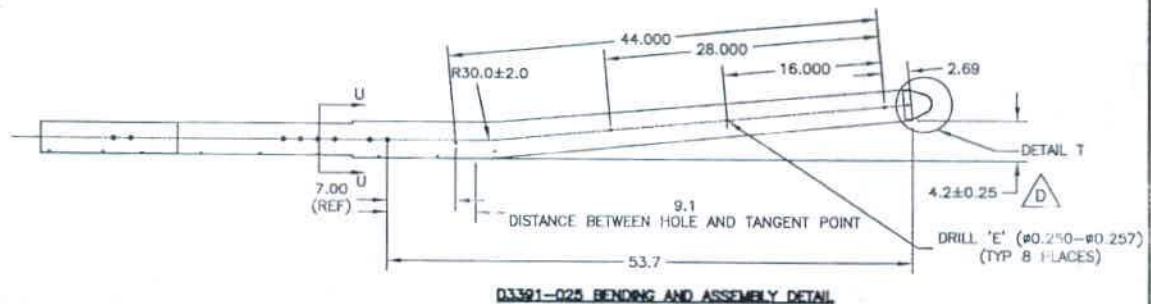
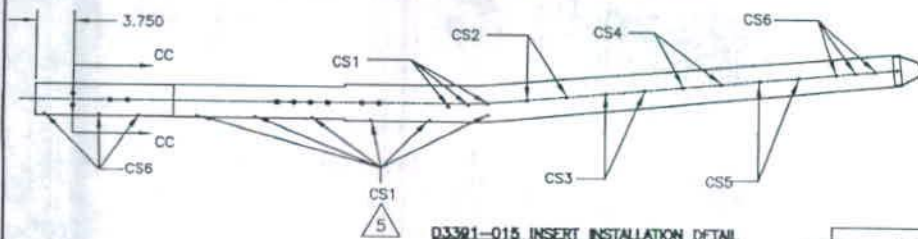
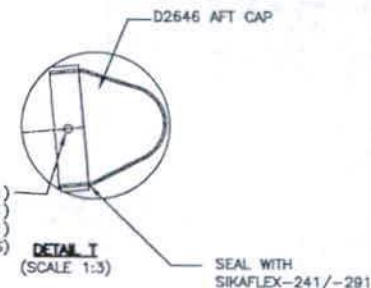
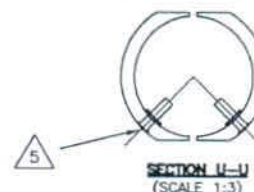
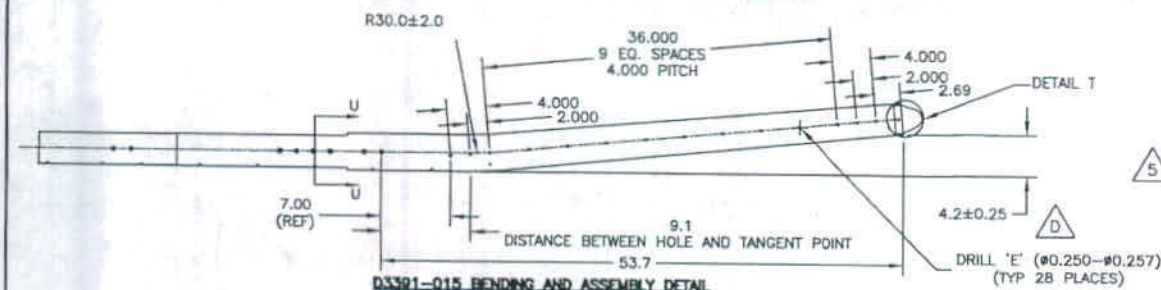
05-03

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|---------|----------|----------|--------------------|--|--------------|
| DESIGN  | PH       | DRAWN BY | PH                 | <b>DART</b> DART AEROSPACE USA, INC.<br>PORT HADLOCK, OH | REV. E       |
| CHECKED | PH       | APPROVED | PH                 | DRAWING NO.<br>D3391                                     | SHEET 4 OF 5 |
| DATE    | 06.04.25 | TITLE    | 412 FLOAT SKIDTUBE | SCALE  | 1:12         |



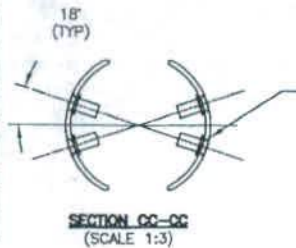


C'SINK AND INSTALL AESS10KBXXX AND/OR NAS1330C3KBXXX IN HOLES MARKED CS1-CS6 AS FOLLOWS

| HOLE MARKED | QTY D3391-015 | QTY D3391-025 | C'SINK | P/N            |
|-------------|---------------|---------------|--------|----------------|
| CS1         | 18            | 14            | Ø0.425 | AESS10KB306    |
| CS2         | 2             | 2             | Ø0.391 | AESS10KB306    |
| CS3         | 2             | 2             | Ø0.391 | NAS1330C3KE316 |
| CS4         | 2             | 2             | Ø0.391 | NAS1330C3KE266 |
| CS5         | 2             | 2             | Ø0.391 | NAS1330C3KE216 |
| CS6         | 12            | 8             | Ø0.391 | NAS1330C3KE166 |

#### D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

| QTY - 015 | QTY - 025 | PART NUMBER    | DESCRIPTION       |
|-----------|-----------|----------------|-------------------|
| X         | X         | D3391-015      | AFT TUBE ASSEMBLY |
|           |           | D3391-025      | AFT TUBE ASSEMBLY |
| 1         | 1         | D6014-090      | AFT TUBE          |
| 1         | 1         | D2646          | AFT CAP           |
| 18        | 14        | AESS10KB306    | INSERT            |
| 4         | 2         | NAS1330C3KB316 | INSERT            |
| 4         | 2         | NAS1330C3KB266 | INSERT            |
| 4         | 2         | NAS1330C3KB216 | INSERT            |
| 12        | 8         | NAS1330C3KB166 | INSERT            |
| 4         | 2         | NAS1330C4KB151 | INSERT            |
| 2         | 2         | AN3C4A         | BOLT              |
| 2         | 2         | NAS1515H3L     | WASHER            |
| 2         | 2         | AN960C10L      | WASHER            |



DRILL 'Q' (#0.332-#0.338)  
C'SINK (#0.529X100#)  
NAS1330C4KB151 INSERT (1)  
(4 PLACES)

|   |  |                          |             |  |
|---|--|--------------------------|-------------|--|
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| DATE 06.04.25   |  | DRAWING NO. D3391        |             | REV. E   |
|   |  | TITLE 412 FLOAT SKIDTUBE |             | SHEET 5 OF 5   |
|   |  |                          |             | SCALE 1:12   |







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